Paper No. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WENCHE E. HERMANSSON, LENNART ANDERSSON, MAGNUS LINSTEN, JIRI BASTA, and LILLEMOR HOLTINGER

Appeal No. 1999-0791
Application No. 08/754,884

HEARD: November 15, 2001

Before WARREN, DELMENDO, and JEFFREY T. SMITH, Administrative Patent Judges.

DELMENDO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 30 through 38, which are all of the claims pending in the above-identified application.

The subject matter on appeal relates to a process for delignification and bleaching of a chemically digested lignocellulose-containing pulp. Further details of this appealed subject matter are recited in illustrative claim 30 reproduced below:

> 30. A process for delignification and bleaching of a chemically digested lignocellulose-containing pulp, wherein the pulp is bleached at a pH in the range from about 1 up to about 6 with a bleaching chemical selected from the group consisting of chlorine dioxide, ozone, peracetic acid and acid peroxides, whereupon a water-soluble chemical containing magnesium is added at a pH in the range from about 1 up to about 7 and in an amount of from about 0.01 up to about 10 kg/ton of dry pulp, calculated as magnesium, and that subsequently the pulp is bleached with hydrogen peroxide at a pH of from about 8 up to about 12.

The examiner relies on the following prior art references as evidence of unpatentability:

Loquenz et al. (Loquenz)	4,834,837	May 30, 1989

Mauno Ruhanen and H.S. Dugal (Ruhanen), "First-Stage Bleaching of Softwood Kraft Pulp with Peroxide, Instead of Chlorine," TAPPI Journal 107-110 (Sep. 1982).

N. Liebergott, B. van Lierop, B.C. Garner, and G.J. Kubes (Liebergott), "Bleaching a Softwood Kraft Pulp without Chlorine Compounds," TAPPI Journal 76-80 (Aug. 1984).

Claims 30 through 36 and 38 on appeal stand rejected under 35 U.S.C. § 103 as unpatentable over Liebergott in view of

Ruhanen. (Examiner's answer, page 3.) Also, claim 37 on appeal stands rejected under 35 U.S.C. § 103 as unpatentable over Liebergott in view of Ruhanen and Loquenz. (Id.)

We reverse these rejections.

According to the examiner (id.), Liebergott describes "chemical pulps in a Z-P [ozone-hydrogen peroxide] bleach sequence...wherein the pH is 2.3 in the ozone stage and a pH of 10.6 in the [hydrogen] peroxide stage." The examiner, however, recognizes that Liebergott does not teach the addition of a "water-soluble chemical containing magnesium" in the manner as recited in appealed claim 30, the sole independent claim on appeal.

To account for this difference, the examiner relies on the teaching of Ruhanen. Specifically, the examiner held: "It would have been obvious to treat the ozone-acid treated pulp of LIEBERGOTT ET AL with a magnesium salt prior to the peroxide bleach stage as such is taught by RUHANEN to improve the brightness of the peroxide bleaching." (Id.) We cannot agree with the examiner's analysis.

Ruhanen teaches:

> Sulfite pulps could be bleached more easily with peroxide than kraft pulp without acid pretreatment, as can be seen from Table I. After acid pretreatment, however, the peroxide bleachability of kraft pulps

> improved considerably, as can be seen in Fig. 1. Further controlled experiments indicated that acid pretreatment was advantageous because it removed metals which presumably catalyzed the degradation of peroxide. Out of eight metals found in the pulp (Al, Ca, Cu, Fe, Mg, Mn, Na, Ti), Cu, Mn, and Fe showed definite trends with brightness. Maximum brightness was obtained when acid pretreatment was carried out at a pH below 3.0. The effect of metal ions on peroxide bleaching was checked by washing the acid-treated pulps with waters containing 100 ppm of Mg, Fe, or Mn. Deionized water was used only in the case of Mg. Pulps washed with waters containing Fe or Mn did not show any improvement in brightness after peroxide bleaching, whereas those with Mg did. Apparently, some metal ions are responsible for the lower bleaching response of unbleached kraft pulp with peroxide.

(Page 108; underlining added.)

Contrary to the examiner's stated position (examiner's answer page 4), nowhere in Ruhanen is there a teaching or suggestion that it is the Mg which causes the improvement in brightness. That is, Ruhanen's disclosure would not have suggested to one of ordinary skill in the art that the presence of Mg ions results in an improvement in terms of brightness above and beyond the improvement that would be obtained after hydrogen peroxide bleaching in the absence of any metal ions. Instead, Ruhanen merely suggests that Mg, unlike other metal ions, did not have any effect on the bleaching properties of hydrogen peroxide. Thus, we determine that Ruhanen does not

provide any incentive or motivation for one of ordinary skill in the art to modify the process of Liebergott to include the addition of a water-soluble chemical containing magnesium in the manner as recited in the appealed claims.

For these reasons, we reverse the examiner's rejections under 35 U.S.C. § 103 over the applied prior art.

The decision of the examiner is reversed.

REVERSED

CHARLES F. WARREN Administrative Patent Judge	)
ROMULO H. DELMENDO Administrative Patent Judge	) BOARD OF PATENT) APPEALS AND) INTERFERENCES
JEFFREY T. SMITH Administrative Patent Judge	)

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